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## Census of Mineral Industries

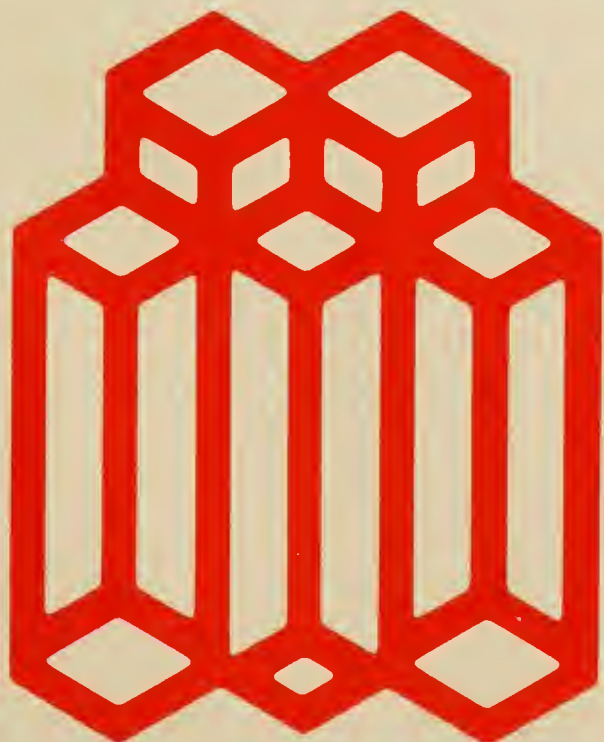
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MIC82-I-10A

INDUSTRY SERIES

### Iron Ores

Industry 1011



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The publications  
from the 1982 Economic and  
Agriculture Censuses are dedicated  
to the memory of Shirley Kallek,  
Associate Director for Economic Fields.  
During her career at the Bureau of the  
Census (1955 to 1983), she continually  
directed efforts to improve  
the timeliness and accuracy of  
economic statistics.

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# 1982 Census of Mineral Industries

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MIC82-I-10A

INDUSTRY SERIES

## Iron Ores

Industry 1011

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Issued February 1985

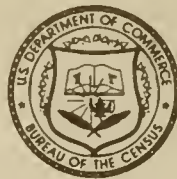


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### INDUSTRY DIVISION

Gaylord E. Worden, Chief

**ACKNOWLEDGMENTS**—Many persons participated in the various activities of the 1982 Census of Mineral Industries. Primary direction of the program was performed by Shirley Kallek, Associate Director for Economic Fields (until May 1983), Charles A. Waite, her successor, and Michael G. Farrell, Assistant Director for Economic and Agriculture Censuses (until August 1984), and John H. Berry, his successor.

This report was prepared in the Industry Division under the general direction of Roger H. Bugenhagen, Chief (until April 1983), and Gaylord E. Worden, his successor. Jacob Silver, Assistant Chief for Mineral Industries and Special Reports, was responsible for the overall management of the census of mineral industries. He guided the planning and implementation of the project and coordinated activities with other divisions.

Program responsibility was shared by the following individuals who participated importantly in the entire program: John P. McNamee, Chief, Minerals Branch; Dale W. Gordon, Chief, Census/ASM Durables Branch; Michael J. Zampogna, Chief, Census/ASM Nondurables Branch; Bernard J. Fitzpatrick, Chief, Census Special Reports Branch (until April 1983), Bruce M. Goldhirsch, his successor; and Kenneth I. Hansen, Chief, Annual Survey of Manufactures Branch.

John P. McNamee was directly responsible for the analysis of the data and preparation of this report.

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# INTRODUCTION

	Page
ECONOMIC CENSUSES OVER TIME .....	III
USES OF THE ECONOMIC CENSUSES .....	III
AUTHORITY AND SCOPE OF THE ECONOMIC CENSUSES .....	IV
CENSUS OF MINERAL INDUSTRIES .....	IV
General .....	IV
Scope of Census and Definition of Mineral Industries .....	IV
Establishment Basis of Reporting .....	IV
Use of Administrative Records .....	V
Auxiliary Establishments .....	V
Industry Classification of Establishments .....	V
Value of Shipments for the Industry Compared With Value of Product Shipments .....	VI
CENSUS DISCLOSURE RULES .....	VI
MICROFICHE .....	VI
SPECIAL TABULATIONS .....	VI
ABBREVIATIONS AND SYMBOLS .....	VI

## ECONOMIC CENSUSES OVER TIME

The early beginnings of America's industrial output were first measured in the United States in the 1810 Decennial Census and again in 1820, when questions on manufacturing were included with those for population. Beginning with the 1840 Decennial Census, there were enumerations of manufactures and mineral industries at 10-year intervals up to and including the year 1900 for manufactures and 1940 for mineral industries. The latter census was taken again for 1954, 1958, 1963, and 1967.

Because of the increasing dominance of manufacturing in the early 20th century, Congress directed that quinquennial censuses of manufactures be taken beginning in 1905. However, from 1919 through 1939, these censuses were conducted every 2 years. The need for war-related current surveys in the early 1940's postponed the next census of manufactures until 1948 (for 1947). That census was again taken for 1954, 1958, 1963, and 1967.

Retail and wholesale trade data were first collected in 1930, and in 1933 information on selected service industries was added to the data-collection operation. These business censuses, as they were called, were again taken for 1935, 1939 (as part of the 1940 decennial program), 1948, 1954, 1958, 1963, and 1967.

Information on construction industries was first obtained in 1930 and again for 1935 and 1939. Data for the full spectrum of construction industries were not gathered again until 1968 (for 1967).

The need for transportation data to supplement information available from existing governmental or private sources was recognized by Congress in the late 1950's and early 1960's. The census of transportation (consisting of several surveys) was first taken for 1963 and again for 1967.

Since 1967, all of the above censuses have been taken quinquennially as part of the Census Bureau's economic census program. (For the 1977 censuses, the coverage of the service

industries was broadened from "selected services" to all services, except religious organizations and private households. A total of 41 additional four-digit standard industrial classifications<sup>1</sup> (SIC's) in 7 SIC major groups was added to the scope of the census. While most of the industries included for the first time for 1977 were covered again for 1982, some were not, i.e., hospitals; elementary and secondary schools; colleges, universities, and professional schools; junior colleges and technical institutes; labor unions and similar labor organizations; and political organizations.)

The first manufacturing census for an outlying area was conducted in Puerto Rico for the year 1909. Thereafter, with the exception of 1929, a census was taken at 10-year intervals through 1949. The first censuses of retail trade, wholesale trade, and selected service industries in Puerto Rico were conducted for 1939. These censuses also were taken for the years 1949, 1954, 1958, 1963, and 1967. A census of construction industries was first introduced in Puerto Rico for 1967. These censuses of Puerto Rico have been taken since then for the years 1972, 1977, and 1982.

Censuses of manufactures, retail trade, wholesale trade, and selected service industries were conducted in Guam and the Virgin Islands of the United States for 1958, 1963, 1967, 1972, 1977, and 1982. Censuses of mineral industries were taken in the Virgin Islands of the United States for the years 1958, 1963, and 1967 but not since that time. A census of construction industries was also undertaken in these areas for 1972, 1977, and 1982.

Retail trade, wholesale trade, selected service industries, manufacturing, and construction industries were canvassed for the first time in the Northern Mariana Islands in 1983 (for 1982).

For 1982, the economic censuses and agriculture censuses were conducted concurrently.

## USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source for facts about the structure and functioning of the Nation's economy and provide essential information for government, business, industry, and the general public. They provide an important part of the framework for such composite measures as the gross national product, input-output measures, indexes of industrial production, and indexes measuring productivity and price levels. Information from the censuses is used to establish sampling frames and as benchmarks for current surveys of business activity, which are essential for measuring short-term economic conditions.

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<sup>1</sup>Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No.041-001-00066-6. 1977 Supplement. Stock No. 003-005-00176-0.



State and local governments use census data to assess business activities within their jurisdictions. The private sector uses the data to forecast general economic conditions; analyze sales performance; lay out sales territories; allocate funds for advertising; decide on locations for new plants, warehouses, or stores; and measure potential markets in terms of size, geographic areas, kinds of business, and kinds of products made or sold.

Following every census, thousands of businesses and other users purchase reports. Likewise, census facts are widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. All 1982 data are available on microfiche from the U.S. Government Printing Office and most data on computer tape from the Census Bureau. Finally, the more than 50 State Data Centers also are suppliers of economic census statistics.

## **AUTHORITY AND SCOPE OF THE ECONOMIC CENSUSES**

The economic censuses are required by law under title 13 of the United States Code, sections 131, 191, and 224, which directs that they be taken at 5-year intervals for the years ending in 2 and 7. The 1982 Economic Censuses covered manufacturing, mining, construction industries, retail trade, wholesale trade, service industries, and selected transportation activities. Special programs also cover minority-owned and women-owned businesses. The next economic censuses are scheduled to be taken in 1988 for the year 1987.

## **CENSUS OF MINERAL INDUSTRIES**

### **General**

The 1982 Census of Mineral Industries is the 19th census of mining establishments in the United States. For 1982, it was conducted jointly with the censuses of manufactures, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses.

This report, from the 1982 Census of Mineral Industries, is one of a series of 12 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each geographic division showing statistics by State and on special subjects, such as size of establishments, type of organization, assets, capital expenditures, type of operation, and fuels and electric energy consumed.

These separate reports subsequently will be issued as portions of the final census volume. The volume—Subject, Industry, and Area Statistics—will show comparative figures for industries and States on the more important measures of the activity of mining establishments, such as employment, payrolls, value of shipments and receipts, capital expenditures, value added by mining, selected supplies consumed, and energy used. It will include, besides the industry statistics, geographic area statistics (number of establishments, employment, payrolls, value added, cost of supplies, value of shipments and receipts, and capital expenditures) for each State and county, by industry group. The introduction to the final volume of the census of mineral industries will discuss, at greater length, many of the subjects

described in this introduction. For example, the volume text will discuss the economic significance of the mining sector, the relation of value added by mining to value added by manufacture, some of the changes in statistical concepts over the history of the census, and the valuation problems arising from intracompany transfers between mining establishments, manufacturing plants, and sales offices and sales branches of a company.

## **Scope of Census and Definition of Mineral Industries**

The 1982 Census of Mineral Industries covers all establishments with one paid employee or more primarily engaged in mining as defined in the 1972 Standard Industrial Classification (SIC) Manual.<sup>1</sup> This is the system of industrial classification developed over a period of years by experts on classification in government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This system of classification is in general use among government agencies as well as organizations outside the government.

The SIC manual defines mining in the broad sense to include the extraction of minerals occurring naturally: Solids such as coal and ores, liquids such as crude petroleum, and gases such as natural gas. The term "mining" is used in the broad sense to include quarrying, well operation, milling (crushing, screening, washing, flotation, etc.) and other preparation needed to make minerals marketable. Exploration is included as is the development of mineral properties. Services performed on a contract, fee, or other basis in the exploration and development of mineral properties are classified separately but within this division.

Mining operations are classified by industry on the basis of the principal mineral produced or, if there is no production, on the basis of the principal mineral for which exploration or development work is in progress. The recovery of material from culm banks, ore dumps, and other waste minerals piles is classified in the appropriate mining industry according to the mineral product recovered.

The crushing, grinding, or other treatment of certain earths, rocks, and other nonmetallic minerals not in conjunction with mining activities are not included in this division but are classified as manufacturing. Hauling and other transportation beyond the mine property and contract hauling (except out of open pits in conjunction with mining) also are excluded.

Mining operations carried on as secondary activities at manufacturing establishments (such as clay pits at clay products plants or sand and gravel operations at ready-mixed concrete plants) are not within the scope of this census. However, selected data (production workers' wages and hours; total cost of supplies, fuels, electric energy, and contract work; and quantity of production for mined products) on such mining activities have been obtained in the 1982 Census of Manufactures and are included in the mining reports. They are clearly specified wherever included.

## **Establishment Basis of Reporting**

The census of mineral industries covers each mining establishment of firms with one paid employee or more operating in the United States. A firm operating more than one establishment

<sup>1</sup>Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-005-00176-0.



is required to file a separate report for each location. A mineral establishment is defined as a single physical location where mineral operations are conducted.

For oil and gas field operations and for contract services, the basis for reporting is different from the "establishment" basis used for other types of mining. Firms operating oil and gas wells, drilling wells, or exploring for oil and gas for their own account were required to submit a separate report for each State or off-shore area adjacent to a State in which it conducted such activities and to include employment, production, and capital expenditures data at the county level. Firms that performed contract services for oil and gas field operations or for mining establishments were required to submit one report covering all such activities in the United States and to include information on receipts for services by State and county. These consolidated reports were then allocated to county establishments based on the data reported at the county level. The 1982 figures for establishments include the summation of operations within each county allocated from these State or nationwide reports and, therefore, are not comparable to prior censuses.

Establishments, as presented in this report, are those in operation "during the year." In the General Summary report (MIC82-S-1), a comparison will be made at the U.S. level of the number of establishments in operation "during the year" and at the "end of the year."

## Use of Administrative Records

From a mailout universe of about 36,000 mining establishments, approximately 11,000 small single-establishment companies were not mailed a questionnaire. For these establishments, some employment, payroll, and receipts data were obtained from the administrative records of other agencies. Selection of the small establishment nonmail cases was done on an industry-by-industry basis, and a variable cutoff was used to determine those establishments for which administrative records were to be used in place of a census report. This information was then used in conjunction with industry averages and other information to estimate the statistics for administrative-record and nonresponse establishments. The first column in tables 2 and 4 provides an indication of the extent that these establishments account for the figures shown. The value of shipments and receipts and cost of supplies were generally not distributed among specific products and supplies for these establishments, but were included in the product and supply "not specified by kind" categories. Overall, establishments for which administrative-record data were used accounted for less than 2 percent of total value of shipments and receipts.

The industry classification codes included in the administrative-record files were used for those establishments excused from filing census forms. Generally, these codes were assigned on the basis of brief descriptions of the general activity of the establishment. Where the description is incomplete, or where there are relatively fine lines of demarcation among industries or between mining and nonmining activities, the code assigned to an establishment could differ from that which would have been assigned on the basis of more complete product or activity information. Therefore, the total establishment count should be viewed as an approximate measure. The counts for establishments with 20 employees or more are far more reliable.

In the 1982 census, as in the 1977, 1972, and 1967 censuses, data for single-unit firms without paid employees were

excluded. This exclusion had only a slight effect on industry aggregates for most industries. Data for firms without employees were included in the 1963, 1958, and 1954 censuses if they reported more than \$500 in (1) value of shipments and receipts, (2) cost of supplies and purchased machinery, or (3) capital expenditures.

## Auxiliary Establishments

Statistics for employment and payroll for individual industries and industry groups also include employment and payroll figures for administrative offices, warehouses, storage facilities, and other auxiliary establishments servicing mining establishments. As in previous censuses, respondents were asked to file separate reports (Form ES-9200) for any separately operated auxiliary establishments. Classification of employment and payroll data at such auxiliary establishments was based on the mining establishments served.

## Industry Classification of Establishments

Each of the establishments covered by the census was classified in one of 42 mineral industries in accordance with the industry definitions in the SIC system. Under this system of classification, an industry is generally defined as a group of establishments producing the same main product or closely related group of products. The resulting group of establishments must be significant in terms of its number, value added by mining, value of shipments and receipts, and number of employees. Application of these criteria led to formulation of 42 mining industries, to each of which a four-digit code number was assigned. The classification system also provides broader groups of industries, with twenty three-digit groups and five two-digit groups. Within industries, the system provides for seven-digit products and five-digit product classes. Products are considered primary to an industry if the first four digits of the product codes are the same as the industry code. Products whose first four code numbers differ from the industry code are called secondary products. To determine the industry classification of an establishment, the seven-digit products are grouped together according to the first four digits of the product code. The first four digits of the group of products with the largest value of production become the industry code for the establishment. (For mineral service industries, the classification is on the basis of receipts for services performed.)

In most industries, establishments making products falling into the same industry category use a variety of processes. Separate statistics are provided on the various types of operation. Whenever possible, separate figures are shown for establishments with mines only, mines with preparation plants, and preparation plants only. Separate figures are provided by type of mine (underground, open pit, and combination). Separate statistics also are provided on producing and nonproducing operations, an establishment being defined as nonproducing if no mineral products were shipped during the year.

Statistics also are usually provided on the production of minerals mined and used in the same establishment for producing prepared minerals or used at the producing establishment for fuel.

Differences in the integration of production processes and types of operation should be considered when relating the general items (employment, payrolls, value added, etc.) to the product and material data.



## Value of Shipments for the Industry Compared With Value of Product Shipments

In census of mineral industries publications, value of shipments data are published for industries and products. Value of shipments and receipts data shown in tables 1 through 4 represent the total value of shipments and receipts of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6 represents the total value of all products shipped that are classified as primary to an industry and includes those that were shipped by all mining establishments regardless of their industry classification. Value of product shipments also may include some products shipped from mining operations associated with manufacturing establishments.

## CENSUS DISCLOSURE RULES

The Bureau of the Census is prohibited by Federal law from publishing any statistics that disclose information reported by individual companies. However, the number of companies classified in a specific industry is not considered a disclosure, so this item may be given even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1-4 of this report is based on the total value of shipments and receipts and capital expenditures. Whenever the total value of shipments and receipts cannot be shown without disclosing information for individual companies, the complete line has been suppressed. If capital expenditures alone is a disclosure, only total capital expenditures and cost of supplies statistics are suppressed. However, the suppressed data are included in higher level totals.

## MICROFICHE

All data in the final reports and volume are available on microfiche. Microfiche reports are sold by the Superintendent

of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

## SPECIAL TABULATIONS

Public-use tapes are not available for 1982 Census of Mineral Industries data. However, special tabulations of data collected may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (such as name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications. Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, D.C. 20233.

## ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

- Represents zero.
- (D) Withheld to avoid disclosing data for individual companies.
- (NA) Not available.
- (S) Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
- (X) Not applicable.
- (Z) Less than half the unit shown.
- n.e.c. Not elsewhere classified.
- n.s.k. Not specified by kind.
- r Revised.
- SIC Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, and bbl, are used in the customary sense. Where the term "tons" only is used, it refers to short tons of 2,000 pounds; where the figures are expressed in tons of 2,240 pounds, the unit of measure is specified as "long tons" or "l. tons."

# Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendix]

Item	Industry and historical	Industry by State	Industry by type of operation	Industry by employ- ment size	Industry- product analysis	Detailed product shipments by State	Detailed supplies consumed by industry
Number of operating companies . . . . .	1						
Establishments:							
Total number . . . . .	1	2,3a	2,3b	4			
Employment size . . . . .	1	2,3a	2,3b	4			
Employment and payroll:							
Number of employees . . . . .	1	2,3a	2,3b	4			
Payroll . . . . .	1	2,3a	2,3b	4			
Production, development, and exploration—							
Workers . . . . .	1	2,13a	2,13b	4			
Hours . . . . .	1	2,13a	2,13b	4			
Wages . . . . .	1	2,3a	2,3b	4			
Supplemental labor costs . . . . .		13a	13b				
Value added, cost of supplies, ship- ments, and inventories:							
Value added by mining . . . . .	1	2,3a	2,3b	4			
Cost of supplies . . . . .	1	2,3a	2,3b	4			17a
Resales, cost and value . . . . .		3a	3b				
Purchased fuels consumed . . . . .		3a	3b				17b
End-of-year fuels stocks . . . . .							17b
Purchased electricity . . . . .		13a	13b				
Cost of contract work . . . . .		3a	3b				
Industry shipments and receipts . . . .	1	2,3a	2,3b	4	15		
Value of net shipments . . . . .	1				15		
Product shipments . . . . .						6	
Inventories . . . . .	3c						
Gross book value of depreciable or depletable assets, beginning and end of year; depreciation and depletion charges for year:							
Buildings and structures, except land		3a	3b				
Machinery and equipment . . . . .		3a	3b				
Mineral exploration and development		3a	3b				
Mineral land and rights . . . . .		3a	3b				
New and used capital expenditures, excluding land and rights:							
Total . . . . .	1	2,3a	2,3b	4			
Buildings and structures . . . . .		3a	3b				
Machinery and equipment . . . . .		3a	3b				
Mineral exploration and development		3a	3b				
Capitalized mineral land and rights . . .		3a	3b				
Rental payments . . . . .		13a	13b				
Expanded mineral exploration, develop- ment, land, and rights . . . . .		13a	13b				

<sup>1</sup>Detailed information shown.





# Iron Ores

## CONTENTS

[Page numbers listed here omit the prefix that appears as part of the number of each page]

---

	Page
Introduction . . . . .	III
Users' Guide in Locating Statistics in This Report by Table Number . . . . .	VII
Description of Industries and Summary of Findings . . . . .	2

---

### TABLES

#### INDUSTRY STATISTICS

1. Historical Industry Statistics: 1982 and Earlier Census Years . . . . .	3
2. Industry Statistics for Selected States and Type of Operation: 1982 and 1977 . . . . .	3
3a. Summary Statistics by Industry for Selected States: 1982 . . . . .	4
3b. Summary Statistics by Industry and Type of Operation: 1982 . . . . .	5
3c. Inventories by Industry: End of 1981 and 1982 . . . . .	6
4. Industry Statistics by Employment Size of Establishment: 1982 . . . . .	6

#### PRODUCT STATISTICS

5. Industry-Product Analysis—Summary of Industry Shipments and Receipts and Net Shipments of Primary Products: 1982 and 1977 . . . . .	6
6. Products or Services for Selected States: 1982 and 1977 . . . . .	7

#### MATERIAL STATISTICS

7a. Selected Supplies, Minerals Received for Preparation, and Purchased Machinery Installed: 1982 and 1977 . . . . .	7
7b. Fuels Consumed by Type, 1982 and 1977, and End-of-Year Fuel Stocks, 1982 . . . . .	8

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### APPENDIX

Explanation of Terms . . . . .	A-1
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Publication Program . . . . .	Inside back cover
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# DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

## IRON ORES

This report shows 1982 Census of Mineral Industries statistics for establishments classified in the following industry:

### SIC Code and Title

#### 1011 Iron Ores

Industry statistics (employment, payroll, value of shipments, cost of supplies, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments, but also all secondary activities performed by the same establishments. This fact should be taken into account in comparing industry statistics (tables 1 through 4 and 7) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and also the value of net shipments of primary products of the industry produced as secondary products by establishments classified in other industries.

Small single-unit companies with up to 20 employees (the cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other government agencies. This information was used in conjunction with industry averages and other information to develop estimates for all statistics. The first column in tables 2 and 4 provides an indication of the extent that these establishments account for the figures shown.

Establishment data were tabulated based on industry definitions contained in the 1972 Standard Industrial Classification Manual and its 1977 supplement.<sup>1</sup>

All dollar figures shown in this report are in current dollars for the year specified and have not been adjusted for changes in price levels. Therefore, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

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<sup>1</sup>Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-005-00176-0.

## INDUSTRY 1011, IRON ORES

The industry includes establishments primarily engaged in mining, beneficiating, or otherwise preparing iron ores. This industry includes production of sinter and other agglomerates, except those associated with blast furnace operations. The total value of shipments and receipts for the industry was \$1,414 million in 1982. The value added by mining was \$770 million. Total employment for the industry decreased to 11.7 thousand employees in 1982, from 19.3 thousand in 1977. Value added per employee was \$65.8 thousand in 1982; in 1977, it was \$54.2 thousand.

Establishments of single-unit companies in this industry with up to 18 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were imputed as described above. These establishments accounted for 1 percent of total value of shipments and receipts.

### COMPARABILITY WITH BUREAU OF MINES STATISTICS

Bureau of the Census statistics on products for Industry 1011 are not entirely comparable with product statistics for the same industry published by the Bureau of Mines. The differences that occur result primarily from differences in data collection methods, coverage, and objectives sought. For example:

1. The Bureau of the Census crude iron ore statistics exclude any iron ore mined by establishments that are not classified as SIC Industry 1011, Iron Ores, that is, where iron ore is not the primary product mined. This production was very small.
2. The Bureau of the Census excludes single-unit establishments with no paid employees. However, the contribution to products of such iron ore establishments is very small. The Bureau of Mines includes all reports obtained regardless of size.
3. The Bureau of the Census product statistics cover treated ore and agglomerates produced whether or not from domestic or imported materials. It does not include those products produced at iron and steel plants. The Bureau of Mines excludes from their domestic mine production or shipments the product of foreign ores beneficiated in the United States.



**Table 1. Historical Industry Statistics: 1982 and Earlier Census Years**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Year	Companies (number)	Establishments during year		All employees		Production, development, and exploration workers			Value added by mining (million dollars)	Cost of supplies used, purchased machinery installed, etc. (million dollars)	Value of shipments and receipts (million dollars)	Value of net ship- ments and receipts <sup>1</sup> (million dollars)	Quantity of primary products <sup>2</sup>	Capital expendi- tures (million dollars)
		Total (number)	With 20 employees or more (number)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Weges (million dollars)						
INDUSTRY 1011, IRON ORES														
1982 <sup>3</sup> -----	50	78	40	11.7	339.8	7.0	12.6	201.2	770.3	706.7	1 414.3	(D)	32.5	62.7
1977 <sup>3</sup> -----	70	97	61	19.3	372.3	13.9	28.5	253.3	1 046.4	1 026.6	1 614.4	1 468.1	56.8	458.5
1972 <sup>3</sup> -----	(NA)	111	56	19.7	218.2	15.3	30.2	155.6	701.5	423.7	1 065.0	(D)	76.4	60.1
1967 <sup>3</sup> -----	(NA)	146	79	22.6	185.9	18.0	36.2	133.4	661.9	400.3	953.4	*861.5	85.9	108.8
1963-----	115	208	101	23.1	161.6	18.1	34.5	112.8	549.3	309.8	762.2	709.4	73.8	96.6
1958-----	127	243	128	30.1	169.0	22.5	39.9	116.3	487.7	219.4	664.5	617.9	66.9	42.8

Note: For data prior to 1958, see 1963 Census of Mineral Industries, volume I, table 1 of industry chapter.

<sup>1</sup>Value of gross shipments less value of crude minerals transferred to other establishments for preparation and value of resales.

<sup>2</sup>Usable iron ores produced in millions of long tons. Represents direct shipping ores, treated ores for consumption, and agglomerates. For 1967, 1963, and 1958, includes manganese ore valued chiefly for its iron content. Figures include production by establishments classified in industries other than iron ores.

<sup>3</sup>Beginning with 1967, data for single-unit establishments without paid employees were excluded from the census.

\*Represents total value of shipments less crude ores received for preparation and prepared ores received for agglomeration.

**Table 2. Industry Statistics for Selected States and Type of Operation: 1982 and 1977**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Industry, geographic area, and type of operation	1982											1977		
	E <sup>1</sup>	Establishments during year		All employees		Production, development, and exploration workers			Value added by mining (million dollars)	Cost of supplies used, purchased machinery installed, etc. (million dollars)	Value of shipments and receipts (million dollars)	Capital expenditures (million dollars)	All employees <sup>2</sup> (1,000)	Value added by mining (million dollars)
		Total (number)	With 20 employees or more (number)	Number <sup>2</sup> (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Weges (million dollars)						
INDUSTRY 1011, IRON ORES														
Geographic Area														
United States -----	-	78	40	11.7	339.8	7.0	12.8	201.2	770.3	706.7	1 414.3	82.7	19.3	1 046.4
California -----	-	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Illinois -----	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Michigan -----	-	8	5	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Minnesota -----	-	21	15	7.6	213.4	4.9	8.1	135.9	515.8	461.8	937.6	39.9	FF	(D)
Missouri -----	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Ohio -----	-	3	3	.7	24.1	-	-	-	-	-	-	-	CC	(D)
Texas -----	E3	3	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Wisconsin -----	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Wyoming -----	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Type of Operation														
Producing establishments -----	-	70	37	11.6	335.7	7.0	12.4	199.2	771.2	703.4	1 414.3	60.2	FF	(D)
Mines only -----	E3	30	7	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Open pit -----	E3	30	7	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Mines with preparation plants -----	-	19	16	8.4	245.8	5.8	10.7	169.2	711.4	612.4	1 270.9	52.9	15.0	868.7
Underground -----	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Open pit -----	-	18	15	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	12.3	788.9
Separately operated preparation plants -----	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Undistributed <sup>3</sup> -----	-	18	11	1.3	41.5	-	-	-	-	-	-	-	1.3	-
Nonproducing establishments -----	-	8	3	.1	4.1	.1	.1	2.0	-9	3.4	-	2.5	(NA)	(D)

<sup>1</sup>Some payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

<sup>2</sup>Data lines with less than 100 employees are not shown. Some statistics are withheld to avoid disclosing data for individual companies. If employment is 100 or more, number of establishments is shown and employment size range is indicated by one of the following symbols: AA—100 to 249 employees; BB—250 to 499 employees; CC—500 to 999 employees; EE—1,000 to 2,499 employees; FF—2,500 employees or more.

<sup>3</sup>Includes data for separately operated auxiliary establishments which were not classified by type of operation.

**Table 3a. Summary Statistics by Industry for Selected States: 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Item	Industry 1011, Iron Ores		Item	Industry 1011, Iron Ores	
	United States	Minnesota		United States	Minnesota
Establishments during year ----- number -----	78	21	Gross book value of depreciable assets (usually original cost) at beginning of year ----- mil. dol. -----	4 350.3	2 955.0
With 0 to 19 employees ----- do -----	38	8	Buildings and other structures, except land ----- do -----	1 399.0	1 238.8
With 20 to 99 employees ----- do -----	19	8	Machinery and equipment ----- do -----	2 830.8	1 825.8
With 100 employees or more ----- do -----	21	9	Mineral exploration and development ----- do -----	79.9	81.1
All employees: -----			Mineral land and rights ----- do -----	40.8	31.4
Average for year ----- 1,000 -----	11.7	7.6	Capital expenditures during year (except land and mineral rights) ----- do -----	62.7	39.9
Payroll for year ----- mil. dol. -----	339.8	213.4	New capital expenditures during year ----- do -----	58.9	38.7
Production, development, and exploration workers: -----			Buildings and other structures, except land ----- do -----	15.8	14.8
Average for year ----- 1,000 -----	7.0	4.9	Machinery and equipment ----- do -----	43.3	24.0
March ----- do -----	12.2	8.1	Used capital expenditures during year ----- do -----	2.8	.3
May ----- do -----	8.0	8.8	Buildings and other structures, except land ----- do -----	.2	-
August ----- do -----	3.8	2.7	Machinery and equipment ----- do -----	2.8	.3
November ----- do -----	4.4	2.3	Mineral exploration and development ----- do -----	1.1	1.0
Hours ----- millions -----	12.8	8.1	Capitalized mineral land and rights ----- do -----	.1	.1
January to March ----- do -----	5.8	3.8	Deductions from depreciable assets during year ----- do -----	59.7	50.8
April to June ----- do -----	3.9	2.8	Buildings and other structures, except land ----- do -----	5.0	4.1
July to September ----- do -----	1.2	.7	Machinery and equipment ----- do -----	54.3	46.8
October to December ----- do -----	1.9	1.0	Mineral exploration and development ----- do -----	.1	(Z)
Wages ----- mil. dol. -----	201.2	135.9	Mineral land and rights ----- do -----	.2	(Z)
Supplemental labor costs not included in payroll ----- do -----	127.7	91.5	Depreciation and depletion charges for year ----- do -----	223.8	147.2
Legally required expenditures, including Social Security contributions ----- do -----	32.0	23.4	Buildings and other structures, except land ----- do -----	65.1	58.2
Payments for voluntary programs ----- do -----	95.8	68.1	Machinery and equipment ----- do -----	153.9	87.9
Value added by mining ----- do -----	770.3	515.8	Mineral exploration and development ----- do -----	3.5	.2
Cost of supplies ----- do -----	706.7	481.8	Mineral land and rights ----- do -----	1.0	.8
Supplies used, minerals received, and purchased machinery installed ----- do -----	320.2	217.7	Gross book value of depreciable assets at end of year ----- do -----	4 353.5	2 944.3
Resales ----- do -----	-	-	Buildings and other structures, except land ----- do -----	1 409.8	1 247.5
Purchased fuels consumed ----- do -----	115.1	78.0	Machinery and equipment ----- do -----	2 822.1	1 803.2
Purchased electric energy: -----			Mineral exploration and development ----- do -----	81.0	62.1
Quantity ----- mil. kWh -----	4 088.3	2 471.3	Mineral land and rights ----- do -----	40.7	31.5
Cost ----- mil. dol. -----	252.2	160.7	Rental payments during year ----- do -----	9.1	5.0
Electric energy generated less sold ----- mil. kWh -----	(D)	(D)	Buildings and other structures, except land ----- do -----	.4	(Z)
Contract work ----- mil. dol. -----	19.2	7.4	Machinery and equipment ----- do -----	8.7	5.0
Cost of purchased communication services ----- do -----	1.7	1.4	Lease rents ----- do -----	2.9	2.8
Value of shipments and receipts ----- do -----	1 414.3	937.8	Expensed mineral exploration, development, land, and rights ----- do -----	52.8	52.7
Value of resales ----- do -----	-	-	Mineral exploration and development ----- do -----	27.4	27.3
Hours worked by production, development, and exploration workers ----- millions -----	12.8	8.1	Mineral land and rights ----- do -----	25.4	25.4
At mines ----- do -----	5.8	3.7			
Underground ----- do -----	.2	-			
Open pit ----- do -----	3.3	2.4			
Surface, including mine shops and yards ----- do -----	2.2	1.3			
At preparation plants ----- do -----	8.4	4.5			
Hours worked, n.s.k ----- do -----	.4	(Z)			
Hours worked on exploration and development (included above) ----- do -----	.4	(Z)			



Table 3b. Summary Statistics by Industry and Type of Operation: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Item	Industry 1011, Iron Ores			Item	Industry 1011, Iron Ores		
	All establishments	Producing establishments			All establishments	Producing establishments	
		Total	Mines with preparation plants			Total	Mines with preparation plants
Establishments during year ----- number ..	78	70	19	Gross book value of depreciable assets (usually original cost) et beginning of year ----- mil. dol..	4 350.3	4 225.3	3 477.8
With 0 to 19 employees ----- do..	38	33	3	Buildings end other structures, except land ----- do..	1 399.0	1 374.1	755.8
With 20 to 99 employees ----- do..	19	16	2	Machinery and equipment ----- do..	2 830.6	2 736.6	2 608.9
With 100 employees or more ----- do..	21	21	14	Mineral exploration and development ----- do..	79.9	79.8	79.0
All employees:				Mineral land and rights ----- do..	40.8	34.7	34.0
Average for year ----- 1,000..	11.7	11.6	8.4	Capital expenditures during year (except land end mineral rights) ----- do..	62.7	60.2	52.9
Payroll for year ----- mil. dol..	339.6	335.7	245.8	New capital expenditures during year ----- do..	58.9	56.4	51.1
Production, development, and exploration workers:				Buildings and other structures, except land ----- do..	15.6	15.4	13.9
Average for year ----- 1,000..	7.0	7.0	5.8	Machinery and equipment ----- do..	43.3	43.0	37.2
March ----- do..	12.2	12.1	9.8	Used capital expenditures during year ----- do..	2.8	.7	.7
May ----- do..	8.0	8.0	6.7	Buildings and other structures, except land ----- do..	.2	-	-
August ----- do..	3.6	3.5	2.6	Machinery end equipment ----- do..	2.6	.7	.7
November ----- do..	4.4	4.3	3.8	Mineral exploration and development ----- do..	1.1	1.1	1.1
Hours ----- millions..	12.6	12.4	10.7	Capitalized minerel land and rights ----- do..	.1	.1	.1
January to March ----- do..	5.6	5.6	4.7	Deductions from depreciable assets during year ----- do..	59.7	55.4	50.3
April to June ----- do..	3.9	3.8	3.4	Buildings end other structures, except land ----- do..	5.0	4.7	2.7
July to September ----- do..	1.2	1.1	.9	Machinery and equipment ----- do..	54.3	50.6	47.6
October to December ----- do..	1.9	1.9	1.7	Minerel exploration end development ----- do..	.1	(Z)	-
Weges ----- mil. dol..	201.2	199.2	169.2	Minerel lend end rights ----- do..	.2	.1	(Z)
Supplemental labor costs not included in payroll ----- do..	127.7	125.4	104.0	Depreciation end depletion charges for year ----- do..	223.6	219.3	197.9
Legally required expenditures, including Social Security contributions ----- do..	32.0	31.4	26.7	Buildings end other structures, except lend ----- do..	65.1	64.3	49.4
Payments for voluntary programs ----- do..	95.6	93.9	77.3	Machinery and equipment ----- do..	153.9	150.7	144.1
Value edded by mining ----- do..	770.3	771.2	711.4	Mineral exploration end development ----- do..	3.5	3.5	3.5
Cost of supplies ----- do..	706.7	703.4	612.4	Minerel land end rights ----- do..	1.0	.9	.9
Supplies used, minerals received, and purchased machinery installed ----- do..	320.2	319.9	252.1	Gross book value of depreciable assets et end of year ----- do..	4 353.5	4 230.3	3 480.5
Resales ----- do..	-	-	-	Buildings and other structures, except land ----- do..	1 409.8	1 384.8	767.1
Purchased fuels consumed ----- do..	115.1	114.2	99.7	Machinery and equipment ----- do..	2 822.1	2 729.8	2 599.2
Purchased electric energy:				Mineral exploration and development ----- do..	81.0	80.9	80.1
Quantity ----- mil. kWh..	4 088.3	4 039.8	3 868.6	Mineral land and rights ----- do..	40.7	34.8	34.1
Cost ----- mil. dol..	252.2	250.1	242.1	Rental payments during year ----- do..	9.1	7.4	6.8
Electric energy generated less sold ----- mil. kWh..	(D)	(D)	(D)	Buildings and other structures, except land ----- do..	.4	.2	.2
Contract work ----- mil. dol..	19.2	19.2	16.6	Machinery and equipment ----- do..	8.7	7.3	6.6
Cost of purchased communication services ----- do..	1.7	1.7	1.4	Leese rents ----- do..	2.9	2.9	2.9
Value of shipments and receipts ----- do..	1 414.3	1 414.3	1 270.9	Expensed mineral exploration, development, land, end rights ----- do..	52.8	52.8	52.7
Value of resales ----- do..	-	-	-	Mineral exploration end development ----- do..	27.4	27.4	27.3
Hours worked by production, development, and exploration workers ----- millions..	12.6	12.4	10.7	Minerel land end rights ----- do..	25.4	25.4	25.4
At mines ----- do..	5.8	5.7	5.1				
Underground ----- do..	.2	.2	.2				
Open pit ----- do..	3.3	3.3	2.8				
Surface, including mine shops and yards ----- do..	2.2	2.2	2.2				
At preparation plants ----- do..	6.4	6.3	5.6				
Hours worked, n.s.k. ----- do..	.4	.4	(Z)				
Hours worked on exploration and development (included above) ----- do..	.4	.4	.4				



**Table 3c. Inventories by Industry: End of 1981 and 1982**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Item	Industry 1011, Iron Ores	
	End of 1981	End of 1982
<b>Total Inventories<sup>1</sup></b> .....	<b>304.3</b>	<b>329.6</b>
Detail by method of valuation:		
Subject to LIFO costing <sup>2</sup> .....	22.6	23.7
LIFO reserve .....	2.6	3.0
LIFO value .....	20.0	20.7
Not subject to LIFO costing .....	260.1	285.7
Valuation method not reported <sup>3</sup> .....	12.1	12.1
Amount subject to LIFO reported without associated reserve and value <sup>4</sup> .....	9.5	8.1
Detail by type of inventory:		
Mined or quarried products .....	111.0	137.1
Supplies, parts, fuels, etc. ....	193.3	192.4

<sup>1</sup>Beginning in the 1982 economic censuses, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from the 1977 census in which respondents were permitted to value their inventories using any generally accepted accounting method.

<sup>2</sup>Only includes data reported by respondents who (a) indicated amount of inventories subject to LIFO cost, and (b) provided sufficient information to determine associated LIFO reserve and value figures.

<sup>3</sup>Includes data estimated for nonresponse and nonmail administrative records and data reported by respondents who provided total inventory figures without other information.

<sup>4</sup>Includes data reported by respondents who indicated their inventories were subject to LIFO cost but did not provide associated LIFO reserve and value figures.

**Table 4. Industry Statistics by Employment Size of Establishment: 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Industry and employment size class	E <sup>1</sup>	Estab- lishments during year (number)	All employees		Production, development, and exploration workers			Value added by mining (million dollars)	Cost of supplies used, purchased machinery installed, etc. (million dollars)	Value of shipments and receipts (million dollars)	Capital expendi- tures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
<b>INDUSTRY 1011, IRON ORES</b>											
<b>Total</b> .....	-	78	11.7	339.8	7.0	12.6	201.2	770.3	706.7	1 414.3	62.7
Establishments during year with an average of—											
0 to 4 employees .....	E4	24	.1	1.4	(D)	.1	.7	6.6	1.4	5.6	2.4
5 to 9 employees .....	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10 to 19 employees .....	E5	11	.2	4.6	.1	.1	1.3	6.6	2.6	9.2	.2
20 to 49 employees .....	E3	15	.7	16.6	.3	.6	6.6	32.1	32.3	41.8	4.6
50 to 99 employees .....	-	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees .....	-	7	1.1	31.0	.3	.4	5.3	29.0	(D)	46.7	(D)
250 to 499 employees .....	-	6	2.3	68.6	1.4	2.5	43.1	127.4	133.2	251.3	9.3
500 to 999 employees .....	-	5	7.5	217.0	4.9	6.8	143.9	566.6	537.1	1 059.6	46.0
1,000 to 2,499 employees .....	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records <sup>2</sup> .....	E9	15	.1	1.1	.1	.1	.6	3.6	.6	4.2	.2

Note: Data shown as a (D) are included in underscored figures above.

<sup>1</sup>Some payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

<sup>2</sup>Some payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate data shown for these small establishments. Data are also included in respective size classes shown.

**Table 5. Industry-Product Analysis—Summary of Industry Shipments and Receipts and Net Shipments of Primary Products: 1982 and 1977**

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as resales or contract work. Columns A-E show this product pattern for an industry. Extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

SIC code	Industry and year	Value of shipments and receipts					Value of net shipments of primary products or services		
		Total	Primary products	Secondary products	Receipts for services	Products purchased and resold without further processing	Total produced in all industries	Produced in this industry	Produced in other industries
		A	B	C	D	E	F	G	H
1011	Iron ores .....	1 414.3	(D)	(D)	(D)	-	<sup>1</sup> 358.2	(D)	(D)
	1977 .....	1 614.4	1 602.6	(D)	(D)	(D)	<sup>1</sup> 483.5	<sup>1</sup> 453.5	<sup>1</sup> 10.0

<sup>1</sup>Represents sum of direct-shipping ores, treated iron ores for consumption, and iron agglomerates.



**Table 6. Products or Services for Selected States: 1982 and 1977**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of the products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Product code	Geographic area and product	1982			1977		
		Quantity of production for all purposes	Product shipments		Quantity of production for all purposes	Product shipments	
			Quantity	Value (million dollars)		Quantity	Value (million dollars)
	<b>IRON ORES</b>						
	<b>United States</b>						
1011--	Iron ores, net production and shipments <sup>1</sup> ----- mil. l. tons..	32.5	31.8	1 358.2	56.8	54.0	1 483.5
10111 --	Crude iron ores----- do..	103.3	(D)	(D)	158.0	(D)	(D)
10111 21	Direct-shipping ores <sup>2</sup> ----- do..	.8	.6	7.6	2.4	2.2	25.3
10111 23	Ores for treatment, concentration, etc.----- do..	102.7	(D)	(D)	155.8	(D)	(D)
	Treated iron ores, including washed material----- do..	33.9	1.2	34.1	57.5	(D)	(D)
10112 03	For consumption----- do..	1.2	1.2	34.1	8.5	8.2	143.1
10112 05	For agglomeration plants not at blast furnaces----- do..	32.7	(Z)	(Z)	49.0	(D)	(D)
	Iron agglomerates----- do..	30.7	30.0	1 318.5	45.9	43.6	1 295.2
10112 06	Pellets----- do..	30.7	30.0	1 316.5	45.9	43.8	1 295.2
10112 08	Sinter, briquets, and other----- do..	(X)	(X)	18.2	(X)	(X)	18.1
10110 00	Iron ores, n.s.k. <sup>3</sup> ----- do..	(X)	(X)	18.2	(X)	(X)	18.1
	<b>Minnesota</b>						
1011--	Iron ores, net production and shipments <sup>1</sup> ----- mil. l. tons..	22.0	21.0	900.7	31.4	29.7	792.9
10111 --	Crude iron ores----- do..	70.1	(D)	(D)	96.8	(D)	(D)
10111 21	Direct-shipping ores <sup>2</sup> ----- do..	-	-	-	(Z)	(Z)	(Z)
10111 23	Ores for treatment, concentration, etc.----- do..	70.1	(D)	(D)	96.8	(D)	(D)
	Treated iron ores, including washed material----- do..	21.9	(D)	(D)	33.1	5.2	82.3
10112 03	For consumption----- do..	(D)	(D)	(D)	5.1	5.2	82.3
10112 05	For agglomeration plants not at blast furnaces----- do..	(D)	-	-	28.0	-	-
	Iron agglomerates----- do..	(D)	(D)	(D)	26.3	24.5	710.6
10112 06	Pellets----- do..	(D)	(D)	(D)	26.3	24.5	710.6
10112 08	Sinter, briquets, and other----- do..	-	-	-	-	-	-
10110 00	Iron ores, n.s.k. <sup>3</sup> ----- do..	(X)	(X)	-	(X)	(X)	2.4

<sup>1</sup>Represents sum of direct-shipping ores, treated iron ores for consumption, and iron agglomerates.

<sup>2</sup>Includes estimates for small companies (estimates were made from administrative-record data rather than collected from respondents).

<sup>3</sup>Represents value for establishments that did not report detailed data.

**Table 7a. Selected Supplies, Minerals Received for Preparation, and Purchased Machinery Installed: 1982 and 1977**

[Includes quantity and cost of supplies consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Supply code	Industry and supply consumed	1982		1977	
		Quantity	Delivered cost (million dollars)	Quantity	Delivered cost (million dollars)
	<b>INDUSTRY 1011, IRON ORES</b>				
	Selected supplies used, minerals received for preparation, and purchased machinery installed-----	(X)	320.2	(X)	734.6
	Minerals or ores for preparation:				
100093	Crude ore received for concentration ----- mil. l. tons..	(D)	( <sup>1</sup> )	(D)	( <sup>1</sup> )
100093	Crude ore produced and concentrated at same establishment ----- do..	97.2	(X)	141.5	(X)
100095	Concentrates received for agglomeration ----- do..	-	-	(D)	( <sup>1</sup> )
100095	Concentrates produced and agglomerated at same establishment ----- do..	33.1	(X)	47.6	(X)
353020	Purchased machinery installed, including mobile loading and transportation equipment -----	(X)	49.0	}	(X) 321.5
353030	Parts and attachments (except those listed elsewhere) for construction, mining, and conveying equipment; and for preparation machinery -----	(X)	42.0		
	Supplies used:				
145000	Bentonite and other clay nonmetallic minerals -----	(X)	17.1	(X)	( <sup>2</sup> )
280110	Industrial chemicals (chemical reagents, calcium chloride, fatty acids, etc.), except explosive materials and blasting accessories-----	(X)	17.0	(X)	( <sup>2</sup> )
289211	Explosive materials, except ammonium nitrate ----- mil. lb..	51.2	11.8	86.0	16.9
289212	Ammonium nitrate ----- do..	24.9	3.1	75.2	7.3
289214	Blasting accessories -----	(X)	1.3	(X)	2.2
290000	Lubricating oils and greases, including hydraulic oils -----	(X)	4.8	(X)	( <sup>2</sup> )
301100	Tires and inner tubes -----	(X)	6.7	(X)	( <sup>2</sup> )
330900	Steel castings, steel forgings, and metallic grinding media -----	(X)	36.2	(X)	( <sup>2</sup> )
331201	Steel mill shapes and forms (such as plates, sheets, roof bolts, bars, rails, wheels, pipe, tubing, wire products, and structural shapes) -----	(X)	12.8	(X)	31.9
353310	Drill bits and reamers -----	(X)	3.0	(X)	( <sup>2</sup> )
970099	All other supplies <sup>3</sup> -----	(X)	194.6	(X)	1351.2
974000	Undistributed—minerals, purchased machinery, parts, attachments, and supplies used <sup>4</sup> -----	(X)	20.8	(X)	3.6

<sup>1</sup>Cost for supply codes 100093 and 100095 was included with supply code 970099 to avoid disclosing data for individual companies.

<sup>2</sup>Cost for this supply is shown separately in 1982. In 1977, this category was included in all other supplies.

<sup>3</sup>A number of supplies included in the all other supplies category in 1977 are now shown separately.

<sup>4</sup>Represents cost for establishments that did not report detailed data, including establishments that were not mailed a form.

**Table 7b. Fuels Consumed by Type, 1982 and 1977, and End-of-Year Fuel Stocks, 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Fuel code	Industry and fuel consumed	1982 consumption		1982 end-of-year stocks <sup>1</sup> (quantity)	1977 consumption	
		Quantity	Delivered cost (million dollars)		Quantity	Delivered cost (million dollars)
	<b>INDUSTRY 1011, IRON ORES</b>					
	Fuels used .....	(X)	115.1	(X)	(X)	104.3
121005	Coal—bituminous, lignite, and anthracite .....	523.5	29.0	507.2	(D)	(D)
	Fuel oil:					
291141	Distillate (light) grade numbers 1, 2, 4, and light diesel fuel .....	647.4	27.5	121.4	2 088.1	33.4
291151	Residual (heavy) grade numbers 5 and 6 and heavy diesel fuel .....	(D)	(D)	(D)	432.2	6.1
131157	Gas—natural, manufactured, and mixed .....	13.0	50.3	(X)	35.2	50.0
291111	Gasoline .....	1.6	1.8	.1	3.9	2.1
960018	Other fuels—liquefied petroleum gas, coke, wood, and other .....	(X)	(D)	(X)	(X)	(D)
977000	Undistributed fuels <sup>2</sup> .....	(X)	2.2	(X)	(X)	.5

<sup>1</sup>Fuel stocks were collected for the first time in 1982.

<sup>2</sup>Represents cost for establishments that did not report detailed data, including establishments that were not mailed a form.



# APPENDIX

## Explanation of Terms

**Employment and related items**—The report forms requested separate information on production, development, and exploration workers as of a payroll period for each quarter of the year and for other employees as of the payroll period which included the 12th of March.

**All employees**—This item includes all full-time and part-time employees on the payrolls of mining establishments for any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Also included are employees working for miners paid on a per ton, car, or yard basis. Excluded are employees at the mine but on the payroll of another employer (such as employees of contractors) and employees at company stores, boarding houses, bunk houses, and recreational centers. Also excluded are members of the Armed Forces and pensioners carried on the active rolls but not working during the period. Officers of corporations are included as employees, but proprietors and partners of unincorporated firms are excluded.

**Production, development, and exploration workers**—This category includes employees (up through the working supervisor level) engaged in manual work: using tools, operating machines, hauling materials, loading and hauling products out of the mine in mine cars or trucks, and caring for mines, plants, mills, shops, or yards. Included are exploration work, mine development, storage, shipping, maintenance, repair, janitorial, and guard services, auxiliary production for use at establishments (such as power plant), record keeping, and other services closely associated with these production and development operations at the establishment covered by the report. Gang and straw bosses and supervisors who performed manual labor are included, as are employees paid on either a time- or piece-rate basis. Also included are miners paid on a per ton, car, or yard basis and persons engaged by them and paid out of the total amount received by these miners. In addition, other employees at the establishment but not on its payroll are included if paid directly through its own employees, such as superintendents and supervisors. The payments received by these types of employees are included as part of the establishments payroll. Supervisory employees above the working supervisor level are excluded from this category.

**All other employees**—Nonproduction personnel at the establishment include those engaged in the following activities: Supervision above the working supervisor level, sales, highway trucking (by employees not entering mines or pits), advertising, credit, collection, clerical and routine office functions, executive, purchasing, financing, legal,

personnel (including cafeteria and medical), professional (such as engineers and geologists), and technical activities. Also included are employees on the payroll of the establishment engaged in the construction of major additions or alterations to the plant and who are utilized as a separate work force. (Workers engaged in regular maintenance and repair operations are not included here but are classified as production, development, and exploration workers.)

**Separately operated auxiliary establishments employees**—This item includes employment at separate central administrative offices or auxiliary units of multiestablishment companies and at those offices or units servicing more than one establishment during the payroll period which included March 12. Establishments were classified on the basis of the industry or principal industry served. Employees at an office located at or near the mining establishment are usually included in the mine report.

**All employees, average for year**—The 1982 census report form requested employment figures for production, development, and exploration workers for four selected pay periods (mid-March, May, August, and November). For all other employees, only a mid-March figure was requested. The annual average is an average of the four monthly figures for production, development, and exploration workers plus the March figure for all other employees. This approach was used to simplify the schedule format and lighten the reporting burden of respondents, since it was found that the average of these selected pay periods closely approximates, for most industries, the average employment for the year that would be obtained from 12 monthly pay periods.

**Payroll**—This term includes all forms of compensation such as salaries, wages, commissions, payments received on a ton, car, or yard basis, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of these establishments, if a corporation; it excludes payments to the proprietor or partners, if an unincorporated concern, and payments to members of Armed Forces and pensioners carried on the active payroll of mining establishments. Also excluded are royalty payments to unions and costs of smithing, explosives, fuses, electric cap lamps, and mine supplies used in production and development work but charged to employees and deducted from their wages. As in the case of employment and establishment figures, the annual payrolls of separate auxiliary establishments of multiestablishment companies are included in the totals for individual industries and for States. Respondents were told that in reporting they could follow the definition of payroll used for calculating the Federal withholding tax.



**Production, development, and exploration worker hours**—This item represents all hours that production, development, and exploration workers worked, both on active days during which there was production or development work and on inactive days when only security guards, inspectors, repairpersons, and other maintenance persons were on duty. It includes all hours worked or paid for at the mining operations, except hours paid for vacations, holidays, or sick leave, when the employee was not at the establishment. Included are actual overtime hours, not straight-time equivalent hours. Hours of working proprietors or partners are excluded.

**Supplemental labor costs**—This item represents employer's cost for fringe benefits not included in payrolls.

**Legally required expenditures, including social security contributions**—This cost includes employer contributions for all programs required under Federal and State legislation, such as Federal Old Age and Survivors' Insurance, unemployment compensation, and worker's compensation. Also included are legally required State temporary disability payments.

**Payments for voluntary programs**—Included in this cost are payments resulting from union negotiated contracts and all employer payments of insurance premiums on hospital and medical plans, life insurance premiums, and premiums on supplementary accident and sickness insurance. For programs supported by joint employer-employee contributions, only the employer payments are included. Also included are payments or allocations on all pension plans regardless of methods of administration, supplemental unemployment compensation plans, welfare plans, stock purchase plans in which the employer payment is not subject to withholding tax, and deferred profit sharing plans.

**Value added by mining**—This measure of mining activity is derived by subtracting the cost of supplies used, minerals received for preparation, purchased machinery installed, purchased fuel, purchased electricity, and contract work from the sum of the value of shipments (mining products plus receipts for services rendered) and total capital expenditures. This statistic avoids the duplication in value of shipments and receipts which results from the use of products of some establishments as supplies, energy sources, or materials by others. Moreover, it provides a measure of value added not only in mineral production but also in the development of mineral properties. For these reasons, it is considered to be the best value measure for comparing the relative economic importance of mining among industries and geographic areas.

**Cost of supplies used, purchased machinery installed, etc.**—Besides supplies used and purchased machinery installed, this cost includes fuels and electric energy used and contract work done by others for each establishment. It includes charges to both the current and capital accounts. It also includes the cost of items used during 1982 whether they were purchased, withdrawn from inventories, or received from other establishments of the company. For selected supplies and fuels and for electric energy, both quantity and cost data were requested. The cost data refer to direct charges actually paid or payable (after discounts) for items used during the year.

Freight charges and other direct charges incurred by the establishment in acquiring the item are included. Companies whose records did not show actual amounts used were asked to approximate use by adding purchases (or receipts) during the year to opening inventory and subtracting closing inventory. Separate figures were requested for: (1) selected supplies used, minerals received for preparation, and purchased machinery installed; (2) electric energy purchased; (3) purchased fuels used for heat, power, or the generation of electricity; (4) contract work done by others; and (5) products bought and resold in the same condition. Supplies and equipment used in mine development, plant expansion, and capitalized repairs, which are chargeable to fixed assets accounts, are included in this item, as are supplies furnished without charge to contractors for use at the mining operation and supplies sold to employees for use at the establishment. Excluded are such costs as advertising, insurance, telephone, and research and consulting services of other establishments; or such overhead costs as depreciation charges, rent, interest, and royalties.

**Selected supplies used, minerals prepared, etc.**—In addition to the total cost of supplies used, purchased machinery installed, etc., which every establishment was required to report, information was also collected on the consumption of major supplies used in mining. These inquiries were restricted to supplies which were important parts of the cost of production, exploration, and development of a particular industry and for which cost information was available. Table 7a contains information on specific supplies consumed. On report forms for almost all mineral industries except the contract services and the crude petroleum and natural gas industries, a uniform inquiry was included on minerals prepared at the reported establishments. Figures were obtained on crude minerals mined at the establishment (quantity), received from other establishments of the company or purchased from others (quantity and cost), and received for preparation on a custom or toll basis (quantity and estimated value). Establishments consuming less than a specified amount (usually \$25,000) were not required to report the cost of a supply. For small establishments for which administrative records were used, the cost of supplies was included in "not specified by kind." (See the section on "Summary of Findings" for the importance of administrative records to an industry.)

**Value of shipments and receipts and net shipments**—The amounts shown as value of shipments and receipts for each industry (tables 1-5), and for individual products or classes of products (table 6), are the net selling values, f.o.b. mine or plant after discounts and allowances, excluding freight charges. "Shipments" include all products physically shipped from the establishment during 1982, including material withdrawn from stockpiles and products shipped on consignment, whether or not sold in 1982. Prepared material or concentrates include preparation from ores mined at the same establishment, purchased, received from other operations of the same company, or received for milling on a custom or toll basis. For products transferred to other establishments of the same company or prepared on a custom basis, companies were requested to report the estimated value, not merely the cost of producing the items. Multiestablishment companies were asked to report value information for each establishment as if it were a separate economic unit. They were instructed to report the value of all products



transferred to other plants of the company at their full economic value, i.e., to include, in addition to direct cost of production, a reasonable proportion of company overhead and profits.

For all establishments classified in an industry, value of shipments and receipts includes: (1) the value of all "primary" products of the industry, (2) the value of "secondary" products which are primary to other industries, (3) the receipts for contract work done for others, except custom milling, and (4) the value of products purchased and resold without further processing. Receipts for custom milling are not included to avoid duplication with the value of custom milled ores included in an industry's primary and secondary products.

Some duplication exists in industry and industry group totals because of the inclusion of materials transferred from one establishment to another for mineral preparation or resale. When this duplication is significant, figures generally are shown for both gross and net shipments. The net shipments are obtained by subtracting the value of crude minerals transferred to other establishments for preparation and the value of resales from the gross shipments.

**Shipments of individual products**—In the 1982 Census of Mineral Industries, information was collected on output for about 200 individual mineral products. In general, the shipments figures of the 1982, 1977, and 1972 Minerals Censuses were confined to separate totals for each crude and each prepared mineral. When shipments were significant, separate figures were also obtained on crude minerals going to preparation plants and those going to consumers.

Figures were collected on both quantity and value of shipments. Shipments include commercial shipments and transfers of products to other operations of the same company. For products that are used to a significant extent within the same establishment for power or heat, and for minerals mined and prepared in the same establishment, total production figures or separate data on production for such uses were collected. Typically, production was also collected for products for which there was usually significant differences between total production and total shipments because of stock changes.

For service industries, the amount received or due for services performed during 1982 was collected as a measure of output. For mine operators who also perform services, the amount received for such services was added to the total value of products shipped to determine total value of shipments and receipts for each establishment.

Table 6 provides the national and State total shipments figures from all industries for each of the products primary to the industry covered.

**Capital expenditures**—This item covers expenditures made during the year for development and exploration of mineral properties, for new construction, and for purchased machinery chargeable to fixed assets accounts of the mineral establishment. They are the type for which depreciation, depletion, or Office of Minerals Exploration accounts are ordinarily maintained. Capital expenditures during 1982 were to be determined as "additions completed during the year plus construction in progress at the end of the year minus construction in progress at the beginning of the year." Reported capital expenditures were to include work done on contract, as well as by the mine forces. Expenditures for machinery and equipment were to include those made for replacement purposes, as well as those for additions

to capacity. Excluded from these expenditures were costs maintenance and repairs charged as current operating expense and expenditures for land and mineral rights.

Whenever applicable, separate figures were provided for expenditures for development and exploration of mineral property, construction of preparation plants and other construction, new machinery and equipment, used plant, and used equipment acquired from others.

**Gross value of depreciable assets**—Assets data were collected on buildings, other structures, machinery, equipment, capitalized mineral exploration and development, and mineral land and rights for which depreciation, amortization, or depletion accounts are maintained. The values shown represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation cost). The data were collected for the beginning and end of the year. Assets at the beginning of the year plus new and used capital expenditures minus retirements should equal assets at the end of the year. For new construction or other improvement projects in progress but not completed by the end of the year, the cumulative capital expenditures were included in the beginning- and end-of-year assets figures.

**Retirements**—This item represents the gross value of depreciable assets sold, retired, scrapped, destroyed, abandoned, etc., during 1982. The values shown are the acquisition costs of the retired assets. This item includes the value of assets (at acquisition cost rather than current market value) transferred to other establishments of the same company.

**Depreciation**—This item shows the reduction in value of depreciable assets brought about through use, gradual obsolescence, or the effect of the elements (decay or corrosion) during the year. Included are charges against assets acquired or completed during the year.

**Rental payments**—This item consists of rental payments made to other companies for use of such depreciable assets as buildings, other structures, machinery, and equipment. It does not include payments made to the parent company or another subsidiary of the parent company for the use of buildings and equipment owned by the parent company or its subsidiary. The value of such company-owned assets is included in the gross value of depreciable assets.

**Current account expenditures**—This item includes all expenses for mineral properties, exploration, and development charged to current accounts. This includes all supplies, machinery, equipment, parts, fuels, power, etc., used for development or exploration and charged to current operating expenses. Also included are royalty payments, acquisition costs for mineral land and rights which were not capitalized, and the cost of maintenance and repairs associated with exploration or development activity and charged to current accounts.

**Inventories**—This item includes inventories of mined or quarried products, and supplies, parts, fuels, etc., at the beginning and end of the year. Included as mined or quarried products are stockpiles of products ready for shipment and stocks of raw products awaiting treatment or beneficiation. Beginning in the



1982 Census of Mineral Industries, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from the 1977 census in which respondents were permitted to value their inventories using any generally accepted accounting method. The inventory figures for 1982, therefore, will not be comparable to prior census data because of the change in reporting instructions.

**Fuels and electric energy used**—This item includes the quantity and cost of fuels and electric energy used in mining. For most industries, separate quantity and cost figures are shown for purchased coal, distillate fuel oil, residual fuel oil, gas, gasoline, and electric energy, and a cost figure is shown for "other fuels" (see

table 7b). Data were also obtained on the quantity of fuels and electric energy produced and consumed at the same establishment. These data are shown for coal, crude petroleum, and natural gas used at the producing establishments for heat and power, and for electric energy generated and used at the same mining operations. In addition, figures for stocks of purchased fuels on hand at the end of the year were reported for the first time in 1982. Every establishment was required to report the total quantity of unexpended fuel it had on hand, including emergency reserves, at the end of the year. Excluded are fuels to be used as feedstocks or raw materials. For electric energy, the quantity generated and used is approximated by subtracting the quantity of electric energy sold from the total quantity generated (excluding generating station use).

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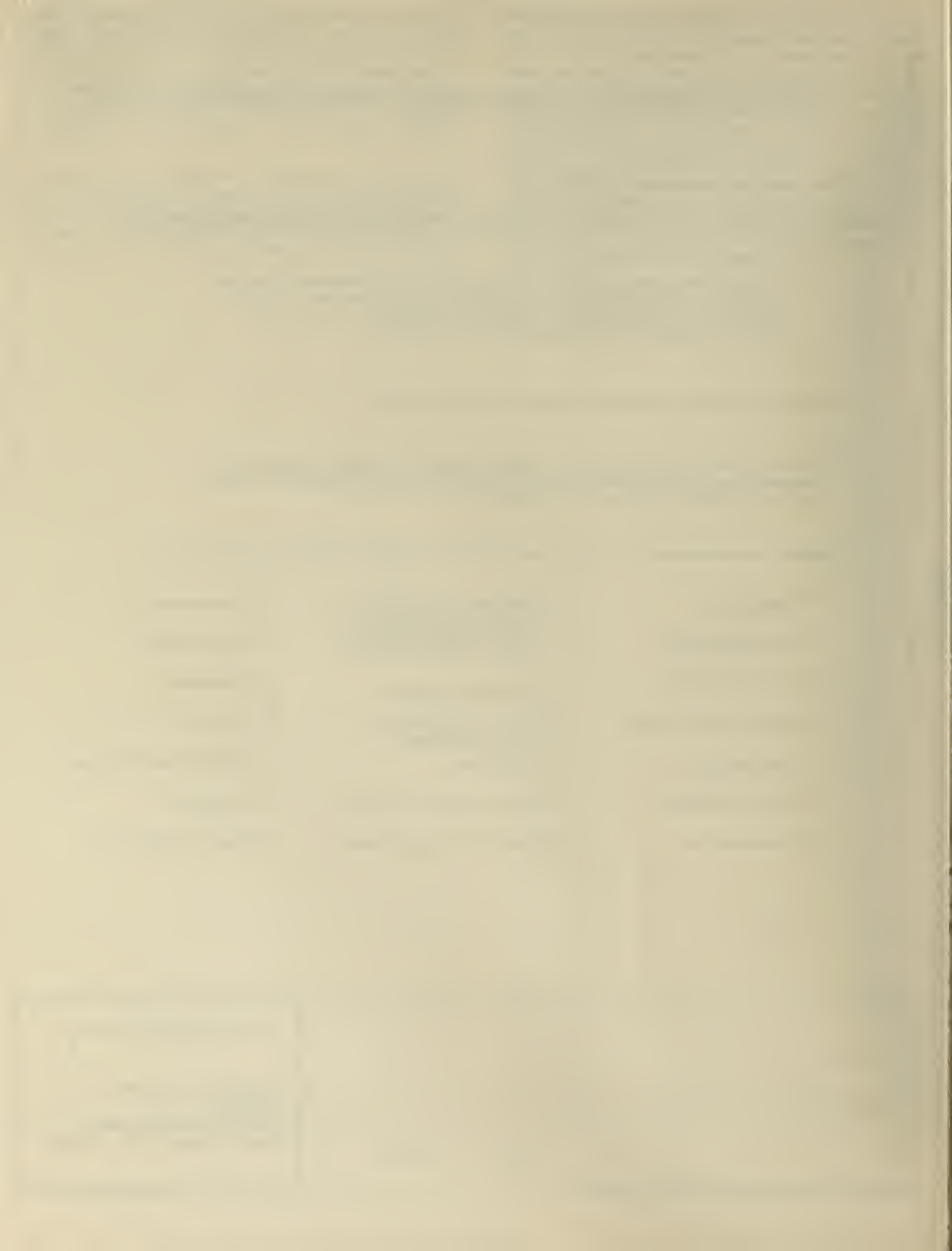
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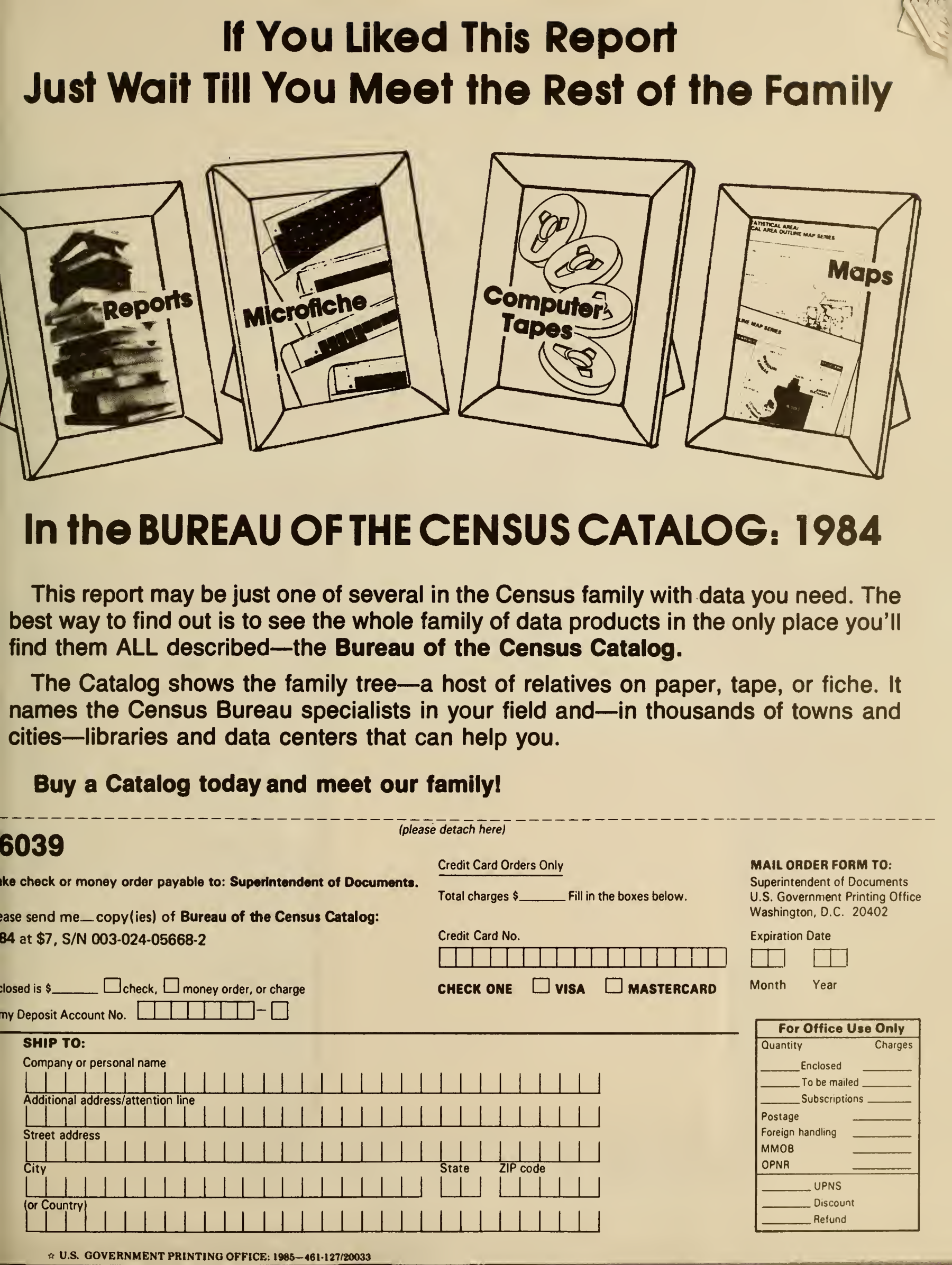
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# PUBLICATION PROGRAM

## 1982 CENSUS OF MINERAL INDUSTRIES

Publications of the 1982 Census of Mineral Industries, containing data on establishments primarily engaged in the extraction of minerals, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233.

### Preliminary Reports

Preliminary data from the 1982 census have been issued in 12 industry and 2 summary reports covering all of the 42 mineral industries. These reports are superseded by more detailed final reports.

### Final Reports

Final detailed statistics are issued in separate paperbound reports.

#### Industry series—12 reports (MIC82-I-10A to -14E)

Each of the 12 reports provides information for an industry or a group of related industries (e.g., clay, ceramic, and refractory minerals). Final figures for the United States are shown for each of 42 mineral industries on quantity and value of products shipped and supplies used; inventories; quantity and cost of fuels and electric energy purchased, quantity of fuel stocks, and the quantities of fuels produced and consumed; capital expenditures; assets; rents; employment; depreciation, amortization and depletion; payrolls; hours worked; cost of purchased machinery; value added by mining; mineral development and exploration costs; number of establishments; and number of companies. Comparative statistics for earlier years are included. Industry statistics are shown by State, type of operation, and size of establishment.

#### Geographic area series—9 reports (MIC82-A-1 to -9)

A separate report for each of the nine geographic divisions presents statistics for individual States for two- and three-digit industry groups by type of operation and by county. Also, data are shown for value of shipments, value added by mining, employment, payroll, hours worked, capital expenditures, cost of supplies, etc., purchased machinery

installed, and number of mining establishments, with comparative 1977 data on employment and value added by mining.

#### Subject series—7 reports (MIC82-S-1 to -7)

Each of the 7 reports contains detailed statistics for an individual subject, such as water use in mineral industries; gross value of depreciable assets, capital expenditures, retirements, depreciation and rental payments; size of establishments; type of operation; fuels and electric energy consumed; type of organization; and a general National-level summary.

### Final Report Volume

Final paperbound reports are subsequently assembled and reissued in one clothbound volume.

### Microfiche

All published data are also available on microfiche.

### Availability of Public Use Computer Tapes

Public-use computer tapes for the census of mineral industries are not included as part of the economic census publication program. Special tabulations can be made available on computer tape on a contract, cost-reimbursable basis. Contact Industry Division, Bureau of the Census, Washington, D.C. 20233 for more information.

## OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, manufactures, enterprise statistics, minority-owned businesses, women-owned businesses, and transportation also are issued as part of the 1982 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. All published reports and microfiche are sold by the Superintendent of Documents, U.S. Government Printing Office. Appropriate announcements and order forms describing these products are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233.



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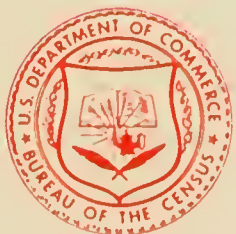
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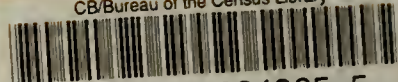


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